

DORONIN, and KINDYAKOV

"An Experiment on the Purification of the Foot and Mouth Disease Antigen and Use of It in the Precipitation Reaction in Foot and Mouth Disease." Tr. Kazakh. NIVI, t. 2, 1939 (Bibliography from article Foot and Mouth Disease by A. L. Skomorokhov, State Publishing House for Agricultural Literature, Moscow/Leningrad 1947.)

SO: U-1625, 11 Jan 52.

DORONIN,

"An Experiment on the Immunization of Guinea Pigs Against Foot and Mouth Disease with Chloroform Vaccine." Zhurn. mikrobiol., epidemiol. i immunobiol., 1940, No 8. (Bibliography from article Foot and Mouth Disease by A. L. Skomorokhov, State Publishing House for Agricultural Literature, Moscow/Leningrad 1947.)

SO: U-1625, 11 Jan 52

DEKONIN, N. N.; KINDYAKOV, V. I. Foot-and-Mouth Disease Laboratory, Kazakh Scientific
Research Veterinary Experimental Station

"Revealing the Possibilities of Employing Precipitation Reaction in Foot-And-Mouth Disease"
- Preliminary Report

Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, 8, 1940, pp 86-87; Trans. (in full)
No. 545 by L. Lulich 9 pages

DORONIN, KINDYAKOV, and RATNER

"Results of the Commission's tests of the active properties of antifoet and mouth disease aluminum hydroxide vaccine." Vestn. s-kh. nauki (veterinariya), 1941, No 1.

SO: U-1625, 11 Jan 52.

DORONIN, N. N., Doc of Vet Sci -- (diss) "Contagious Pleuropneumonia in She-goats,"
Leningrad, 1959, 15 pp (Ministry of Agriculture, RSFSR Leningrad Veterinary Institute)
(KL, 7-60, 109)

SHITOV, K.A., dotsent; VITKALOV, V.P., veterinarnyy vrach; SHCHERBAN', N.F.,
aspirant; DORONIN, N.N., doktor veterin. nauk

Testing BCG vaccine in tuberculosis of poultry. Veterinariia 41
no.2:41-43 F '65. (MIRA 18:3)

1. Voronezhskiy sel'skokhozyaystvennyy institut (for Shitov).
2. Rossoshanskoye proizvodstvennoye upravleniye (for Vitkalov).
3. Donskoy sel'skokhozyaystvennyy institut (for Shcherban',
Doronin).

DORONIN, N.N., prof.; MURATOV, S.I., dotsent; KORZH, B.A., dotsent;
GEVKAN, I.I., kand. veter. nauk; KARABIN, Ye.V., assistant

Studying tuberculosis in cattle infected with the pathogen
of the avian type. Veterinariia 42 no.11:34-35 N '65.
(MIRA 19:1)

1. L'vovskiy zootekhnicheskoy-veterinarnyy institut.

DORONIN, P.

USSR/Agricultural Coops 4106. Sep 1947
Communist Party 3144.0101

"Investigation of the Economics of Collective Farms,"
P. Doronin, Secy Kuzak Oblast Committee of VKP (b),
10 pp

"Partynaya Zhizn" No 17

Discusses changes in administration of rural economy
as result of criticism by Feb Plenum of TsK VKP (b).
Outlines actual and theoretical functions of rayon and
oblast committees. Describes operation of several
agricultural enterprises and gives table comparing six
rayons of Kuzak Oblast as to mechanized and animal
power in horsepower, fulfillment of work in one horse-

LC

15036

USSR/Agricultural Coops 4106. (Contd) Sep 1947
power per hectare, and percentage of assimilation of
prewar sowed area.

15036

LC

15036

DORONIN, Pavel Ivanovich

[On Smolensk land] Na zemle smolenskoj. Moskva, Gos.izd-vo
polit.lit-ry, 1958. 178 p. (MIRA 12:7)
(Smolensk Province--Collective farms)

DORONIN, P.V.

Fanning out cable heads without growing the conductors. Avtom., telem.
i svyaz' 2 no.6:34-35 Je '58. (MIRA 11:6)

1. Zamestitel' nachal'nika Sol'vychegodskoy distantzii signalizatsii
i svyazi Pechorskoy dorogi. (Electric cables)

DORONIN, P.V.; YEVYUSHENKO, I.N.; DUDENKO, T.V., starshiy elektromekhanik

Portable telephone sets for linemen. Avtom., telem. i svyaz' 3
no.2:26-28 F '59. (MIRA 12:4)

1. Zamestitel' nachal'nika Vychegodskoy distantzii signalizatsii i
svyazi Pechorskoy dorogi (for Doronin). 2. Zamestitel' nachal'nika
Saksaul'skoy distantzii signalizatsii i svyazi Kazakhskoy dorogi
(for Yevtushenko).

(Telephone--Equipment and supplies)

DORONIN, P.V.

Use of point type automatic cab signaling. Avtom.telem.i sviaz'
3 no.10:23-24 0 '59. (MIRA 13:2)

1. Zamestitel' nachal'nika Sol'vychegodskoy distantssi
signalizatsii i svyazi Severnoy dorogi.
(Railroads--Signaling)

DORONIN, S.V., inzh.

What's new in making reinforced concrete crossties on stands.
Transp. stroi. 10 no. 12:30-33 D '60. (MIRA 13:12)
(Railroads---Ties, Concrete)

DORONIN, P.V.

Device for the laying on of foil. Avtom.telem. i sviaz' 3
no.12:39-40 D '59. (MIRA 13:4)

1. Zamestitel' nachal'nika Sol'vychegodskoy distantzii signalizatsii
i svyazi Severnoy dorogi.
(Electric wire)

DORONIN, S.V., inzh.

Increase the efficiency of autoclaves. Transp. stroi. 12 no.6:34-36
Je '62. (MIRA 15:6)

(Autoclaves)
(Precast concrete)

DORCHIN, S.V., inzh.

Increase the production and improve the quality of concrete
cross ties. Transp. stroi. 14 no.4:24-26 Ap '64. (MIRA 17:9)

DORONIN, V A

GOLOV, V.K.; OMAROV, V.S.; NASEDKIN, B.Ye.; DORONIN, V.A.; DOMOZHIROV, K.D

Semidry pressing of steel casting equipment. Ogneupory 17 no.5:
195-201 My '52. (MIRA 8:9)

1. Nizhne-Tagil'skiy ogneuporny zavod
(Foundry machinery and supplies)

PAPAKIN, Kh.M.; DORONIN, V.A.; Primali uchastiye: OBUKHOV, A.A.;
GOLOV, V.K. [deceased]; OSTROVSKIY, B.N.; MURATOV, A.A.;
DOMOZHIROV, K.D.

Molding fire clay grates for coke ovens from moist mixture.
Ogneupory 26 no.9:402--404 '61. (MIRA 14:9)

1. Nizhne-Tagil'skiy metallurgicheskiy kombinat.
(Nizhniy tagil--Fire brick)

DORONIN, V.I., insh.

Selecting the transmission type for high-speed passenger
train locomotives. Vest.TSNII MPS 19 no.4:51-53 '60.
(MIRA 13:7)

(Locomotives--Transmission devices)

DORONIN, V.I.

New method for determining the balancing force. Izv.vys.ucheb.zav.;
mashinostr. no.4:5-10 '64. (MIRA 18:1)

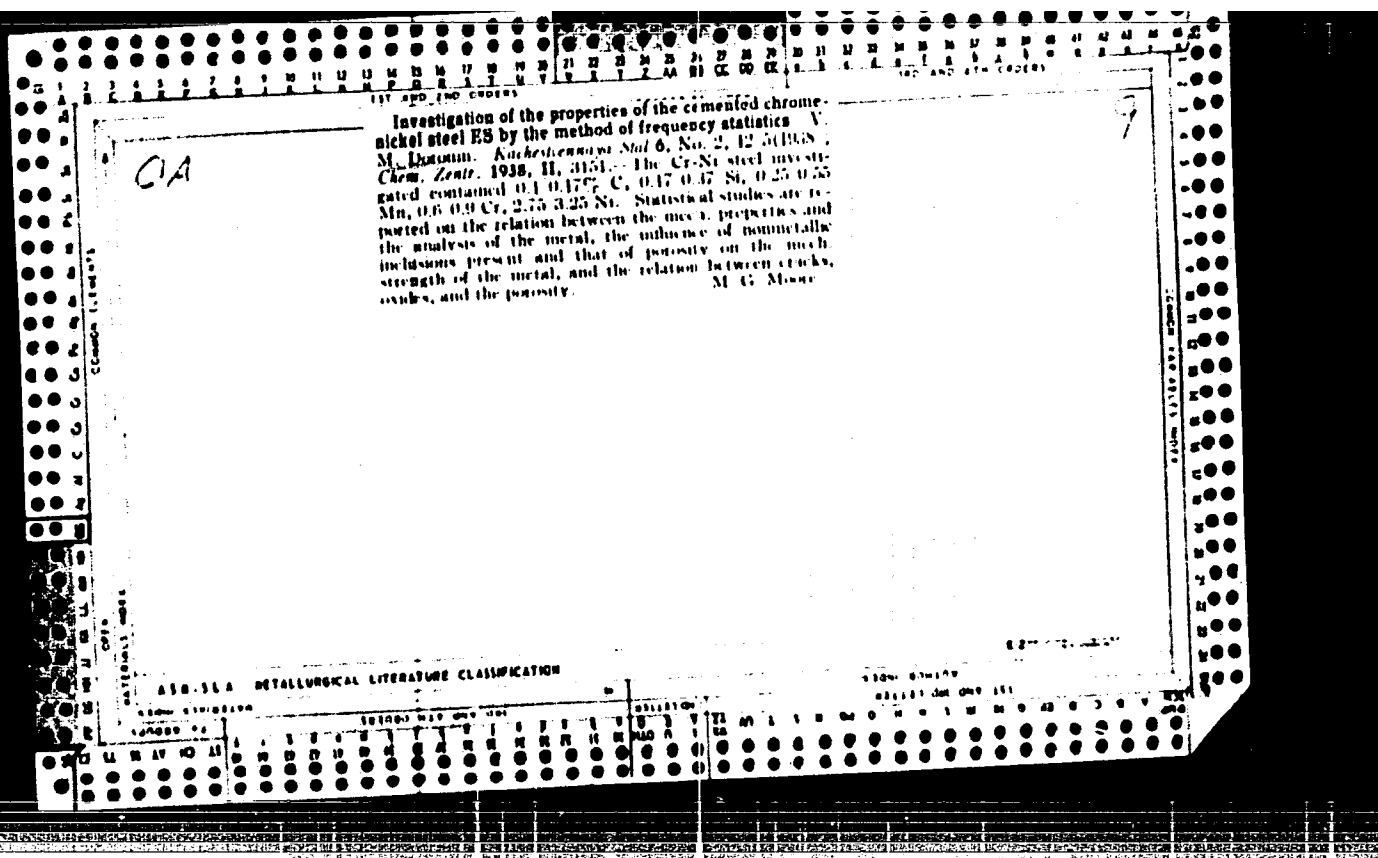
1. Starshiy prepodavatel' Khabarovskogo instituta zheleznodorozhnogo
transporta.

DORONIN, V.I., starshiy prepodavatel', kand. tekhn. nauk

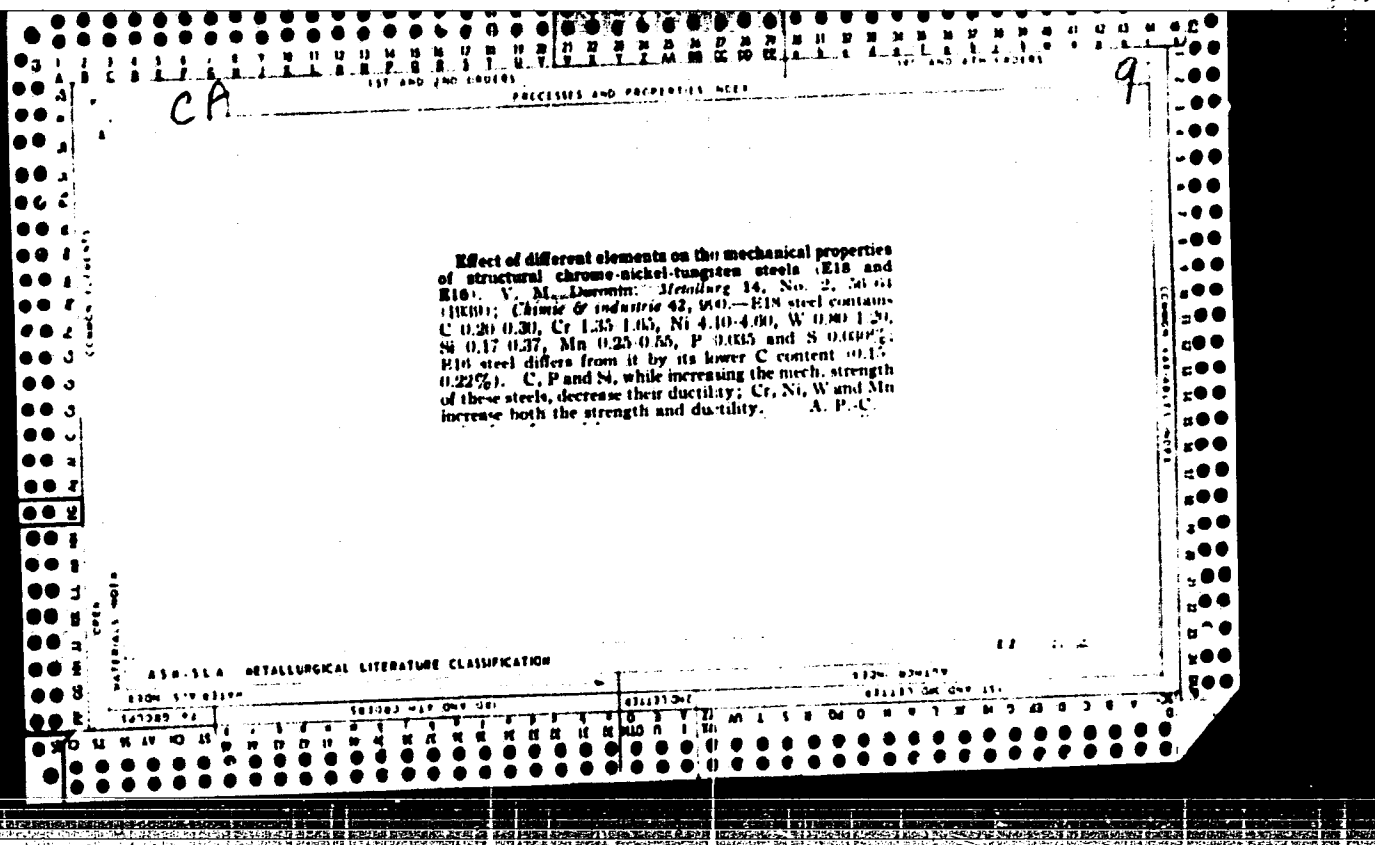
Kinematic and power design of Assur's mechanism. Trudy Khab.
IIT no.16:209-217 '64 (MIRA 18:2)

FEDOROV, G.K., dotsent, kand. tekhn. nauk; DORONIN, V.I., starshiy pre-podavatel', kand. tekhn. nauk

Construction of velocity and acceleration plans using a projection method. Trudy Khab. IIT no.16:235-249 '64
(MIRA 18:2)



The Effect of Alloying Elements on the Mechanical Properties of Chromium-Nickel-Tungsten Structural Steel 25KANYA (E 18) and 18KANYA (E 16). V. M. Duggin (Metallurg, 1939, No. 2, pp. 56-65). (In Russian). Steel 25KANYA has the following specified composition: (Carbon 0.20-0.30%, chromium 1.35-1.45%, nickel 4-10-40%, tungsten 0.80-1.20%, silicon 0.17-0.37%, manganese 0.25-0.55%, phosphorus <0.035%, and sulphur <0.030%), whilst the carbon content of steel 18KANYA is slightly lower at 0.15-0.22%. In the present article the results of statistical analyses of test data for 480 tests (about 2300 test-pieces) of 25KANYA and 070 tests (about 770 test-pieces) of 18KANYA are described and discussed. The object of these investigations was to determine the effect of varying each of the alloying elements within the above limits on the tensile properties, impact strength, and hardness of the steels, as well as to determine the optimum heat-treatment temperatures. Increasing the carbon, phosphorus and silicon raise the tensile strength, but lower the ductility, whilst chromium, nickel, tungsten, and manganese raise both the tensile strength and ductility. Carbon has the greatest effect on the optimum tempering temperature (the tempering temperature is raised 4° C. per 0.01% of carbon), followed by phosphorus (3° C. rise per 0.01%), tungsten (2° C. rise per 0.1%), chromium (2° C. rise per 0.1%), and nickel (1.5° C. rise per 0.1%). Silicon and manganese in the amounts present had no noticeable effect. The results obtained in the investigation enable the mechanical properties of any heat to be calculated from its chemical composition.



18

DORONIN, V.

1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES HERE

An Attempt to Calculate the Mechanical Properties of Steel 12KANZA from its Chemical Composition. V. Doronin. (Stal, 1939, No. 4-5, pp. 66-68). (In Russian). The chromium-nickel case-hardening steel 12KANZA contains carbon 0.17% max., silicon 0.17-0.37%, manganese 0.25-0.55%, chromium 0.60-0.90%, nickel 2.75-3.25%, sulphur 0.03% max. and phosphorus 0.035% max. Data were obtained from specimens from 500 heats which showed the effect on the tensile properties and hardness caused by changes of 0.01% in the carbon content and of 0.1% in the silicon, manganese, chromium and nickel contents. These figures can be used to determine the mechanical properties of such steels when the analysis of the heat is known. In further investigations very fair agreement was obtained between calculated results and test data, except in the case of those relating to reduction in area in which case the former were lower than the latter.

ASS. SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM DIVISION

DATE

BY

REMARKS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

CA

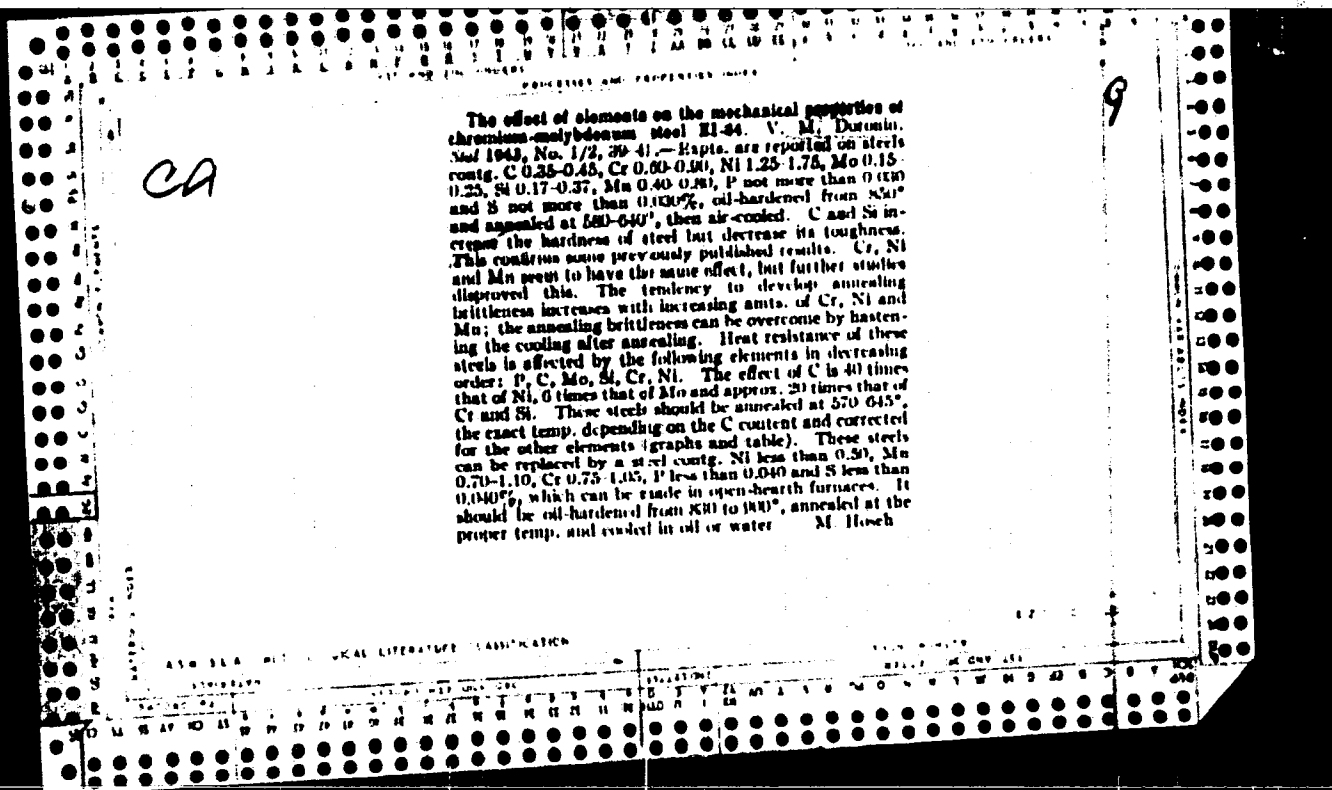
7

Structural steel. V. M. Doronin. Russ. 57,301, June 30, 1940. A structural steel contains Mn 0.7-1.0% and may contain C 0.1-0.16, Cr 0.7-1.0, and Ni 2.35-2.75%.

Stainless steel. Albert L. Kaye, Robert S. Williams and John Wulff (to The Chemical Foundation, Inc.). U. S. 2,307,990, Dec. 30. A steel of high resistance to pit corrosion is formed contg. Cr about 10-20 and Ni about 8-12, Mn up to about 4, and Ag up to about 1%, the remainder being Fe.

ASAC SLA METALLURGICAL LITERATURE CLASSIFICATION

CLASS	NO.	DATE	BY	REMARKS
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9
10	10	10	10	10
11	11	11	11	11
12	12	12	12	12
13	13	13	13	13
14	14	14	14	14
15	15	15	15	15
16	16	16	16	16
17	17	17	17	17
18	18	18	18	18
19	19	19	19	19
20	20	20	20	20
21	21	21	21	21
22	22	22	22	22
23	23	23	23	23
24	24	24	24	24
25	25	25	25	25
26	26	26	26	26
27	27	27	27	27
28	28	28	28	28
29	29	29	29	29
30	30	30	30	30
31	31	31	31	31
32	32	32	32	32
33	33	33	33	33
34	34	34	34	34
35	35	35	35	35
36	36	36	36	36
37	37	37	37	37
38	38	38	38	38
39	39	39	39	39
40	40	40	40	40
41	41	41	41	41
42	42	42	42	42
43	43	43	43	43
44	44	44	44	44
45	45	45	45	45
46	46	46	46	46
47	47	47	47	47
48	48	48	48	48
49	49	49	49	49
50	50	50	50	50
51	51	51	51	51
52	52	52	52	52
53	53	53	53	53
54	54	54	54	54
55	55	55	55	55
56	56	56	56	56
57	57	57	57	57
58	58	58	58	58
59	59	59	59	59
60	60	60	60	60
61	61	61	61	61
62	62	62	62	62
63	63	63	63	63
64	64	64	64	64
65	65	65	65	65
66	66	66	66	66
67	67	67	67	67
68	68	68	68	68
69	69	69	69	69
70	70	70	70	70
71	71	71	71	71
72	72	72	72	72
73	73	73	73	73
74	74	74	74	74
75	75	75	75	75
76	76	76	76	76
77	77	77	77	77
78	78	78	78	78
79	79	79	79	79
80	80	80	80	80
81	81	81	81	81
82	82	82	82	82
83	83	83	83	83
84	84	84	84	84
85	85	85	85	85
86	86	86	86	86
87	87	87	87	87
88	88	88	88	88
89	89	89	89	89
90	90	90	90	90
91	91	91	91	91
92	92	92	92	92
93	93	93	93	93
94	94	94	94	94
95	95	95	95	95
96	96	96	96	96
97	97	97	97	97
98	98	98	98	98
99	99	99	99	99
100	100	100	100	100



9

Effect of chemical composition on the mechanical properties of structural chromium steel. V. M. Dronin. *Sov. 7, 146-R(1947)*.—The relation of the mech. properties of 2 Cr steels (30KhA and 40 Kh) to their compn. was analyzed statistically by using a large no. of specimens. The resistance to temper after hardening was greatly increased by P, S, and C, and to a lesser extent by Cr, Ni, Si, and Mn. With the exception of Mn and S, these elements improved the strength of the steel. The viscosity was lowered by all of these elements, most by P, S, Mn, and Si.

M. Hirsch

CA

7

Effect of chemical composition on the mechanical properties of structural carbon steel. V. M. Doronin. *Stal* 8, 813 8(1948).—The elements studied were C, Si, Mn, Cr, Ni, S, and P. Of these, the effect of S was the greatest: it considerably raised the tensile strength and yield point and lowered the σ_b elongation and the σ_b reduction in area. The other elements in order of their effectiveness were Mn, C, Cr, Ni, P, and Si. M. Hosh

PA 19/49T76

USSR/Metals

Steel, Carbon

Steel - Properties

Oct 4

"Action of Chemical Composition on the Mechanical Properties of Structural Carbon Steel,"
V. M. Dorozkin, Eng., Elektrostal', 22 pp

"Steel," No 10

Even small quantities of elements affect mechanical properties of structural steel. Must pay special attention to keeping sulfur content as low as possible. Permissible chrome content can be slightly increased. Manganese and nickel

USSR/Metals (Contd.)

19/49T76

contents should approach lower limit for small parts and vice versa. Slight increase of phosphorous content causes negligible loss of toughness. Includes five graphs, and three tables.

Oct 48

19/49T76

DORONIN, Vladimir Mikhaylovich; LAKHTIN, Yu.M., redaktor; ATTOPOVICH,
M.K., tekhnicheskii redaktor

[Heat treatment of carbon steel and steel alloys] Termicheskaya
obrabotka uglerodistoi i legirovannoi stali. Moskva, Gos.nauchno-
tekh. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955. 395 p.
(Steel--Heat treatment) (MIRA 9:4)

AUTHOR: Doronin, V.M., Engineer

SOV/133-58-10-23/31

TITLE: The Influence of Alloying Elements in Concentration
Within the Limits of Specified Compositions on Mechanical
Properties of Steels 1Kh18N9T and 4Kh14N14V2M (Vliyaniye
legiruyushchikh primesey v predelakh marochnogo sostava
na mekhanicheskiye svoystva staley 1Kh18N9T i 4Kh14N14V2M)

PERIODICAL: Stal', 1958, Nr 10, pp 938-943 (USSR)

ABSTRACT: In order to determine the influence of the variation in the content of alloying elements (within specified limits of composition) on the mechanical properties of the above steels a statistical analysis of the results of control-testing of production heats was carried out. Mean chemical composition and mechanical properties of steels 1Kh18N9T after hardening from 1 120 °C in water and 4Kh14N14V2M after heating for 5 hours at 820 °C are shown in Tables 1 and 2. Frequency curves of the content of individual elements in the above steels and indices of their mechanical properties at testing temperatures 20 and 700 °C are shown in Figures 1 and 2. The influence of changes in the content of various elements on mechanical properties of steels 1Kh18N9T and 4Kh14N14V2M at 20 ° (numerator) and 700 ° (denominator) are shown in Tables 3 and 4, respectively. It was found

Card 1/2

SOV/133-58-10-23/31
The Influence of Alloying Elements in Concentration Within the
Limits of Specified Compositions on Mechanical Properties of Steels
1Kh18N9T and 4Kh14N14V2M

that an increase in C, Mn, Ti, W and Mo content in metal (within the limits of specified composition) leads to its efficient strengthening (an increase in the content of silicon has only insignificant influence). Nickel and manganese as well as chromium improve the ductility of 1Kh18N9T steel, while carbon deteriorates it. All the above mentioned elements reduce the resilience of steel although nickel and molybdenum diminish it less than other elements.

There are 2 figures, 4 tables and 5 Soviet references.

ASSOCIATION: Zavod "Elektrostal'" ("Elektrostal'" Works)

Card 2/2

MESHCHERINOVA, O.N., kand.tekhn.nauk; TRIFONOVA, T.N., inzh.; TORPANOVA,
G.A., kand.tekhn.nauk; SMIRNOV, Ye.V., inzh.; BABAKOV, A.A.,
kand.tekhn.nauk; KAROVA, Ye.N., inzh.; ZHADAN, T.A., inzh.;
TALOV, N.P., inzh.; TSYPKINA, Ye.D., kand.tekhn.nauk; DORONIN,
V.M., inzh.; DAVIDOVA, L.N., inzh.; PRIDANTSEV, M.V., prof.,
doktor tekhn.nauk, red.; LIVSHITS, G.L., kand.tekhn.nauk, red.;
BERLIN, Ye.N., red.izd-va; MIKHAILOVA, V.V., tekhn.red.

[Steels with low nickel content; a handbook] Stali s ponishen-
nym soderzhaniiem nikela; spravochnik. Pod red. M.V.Pridantseva
i G.L.Livshitsa. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po
chernoi i tsvetnoi metallurgii, 1961. 200 p.

(MIRA 14:12)

1. Direktor instituta kachestvennykh staley Tsentral'nogo
nauchno-issledovatel'skogo instituta chernoy metallurgii im.
I.P.Bardina (for Pridantsev).

(Nickel steel)

S/125/61/000/001/008/016
A161/A133

AUTHORS: Vorob'yev, Yu.K., Doronin, V.M., Klyuyev, M.M., Topilin, V.V.,
Shiryayev, N.A., Voynovskiy, Ye.V., Medovar, B.I., Latash, Yu.V.,
Maksimovich, B.I.

TITLE: The effect of electro-slag remelting on the quality of chrome-
nickel molybdenum 3M 847 (EI847) steel

PERIODICAL: Avtomaticheskaya svarka, no. 1, 1961, 52-56

TEXT: The authors present the results of experiments carried out with arc
furnace, vacuum furnace, and electro-slag processes. The chemical composi-
tion of the EI847 grade steel is (%): 0.10-0.15 C, 14-17 Cr, 14-16 Ni, 2.5-
3.5 Mo, 0.45-0.85 Nb, not over 0.8 Si, 0.8 Mn, 0.02 S and 0.03 P. It is
austenitic, is used mainly for seamless pierced and rolled tubes, and the
ductility at high temperature is of primary importance. The austenitic
structure of this steel is not subjected to $\gamma \rightarrow \alpha$ transformation at high
cold deformation or any heat treatment. The surplus component is carboni-

Card 1/53

The effect of electro-slag remelting ...

S/125/61/000/001/008/016
A161/A133

tride. Cubic Cr_2C_6 carbide and the intermetallic MoFe_2 phase were revealed along with Nb carbonitride by X-ray analysis after long aging at $600-700^\circ\text{C}$. Aging for 500-7,000 hours at $550-700^\circ$ does not cause any tendency to inter-crystalline corrosion when EI847 steel is preliminarily hardened. The 100-hour strength limit for hardened EI847 steel is 25 kg/mm^2 at 650° , and 30 kg/mm^2 at 600° . In the tests electro-slag remelting was carried out in a ρ -909 (R909) unit, in a 250 mm diameter crystallizer; the consumable electrodes were forged rods 140 mm in diameter, cleaned with emery wheel. No defects of any kind were found in ingots prepared by electro-slag remelting (Fig.2). Ingots produced by arc remelting in the vacuum were nearly as sound. The presence of globular inclusions is apparently due to the high contamination of the initial metal before remelting. The steel produced by electro-slag and vacuum remelting had a higher ductility than steel melted by any arc furnace process (Fig.4); electro-slag remelted steel was less subject to overheating (its ductility remained at same level up to $1,300^\circ\text{C}$). Conclusions: 1) Purest (from nonmetallic inclusions) EI847 steel melted in arc furnaces was obtained in the process with a fresh charge with rimming and slag deoxidation by aluminum powder, and by employing Ni-Nb alloys, or ferroniobium with a low Si content. This process ensures the best ductility of the steel

Card 2/53

The effect of electro-slag remelting ...

S/125/61/000/001/008/016
A161/A133

at high and ordinary temperatures. 2) If very high purity is required the EI847 steel must be melted using either the electro-slag or vacuum arc remelting with consumable electrodes. Both these methods result also in the highest technological ductility. 3) Ingots produced with the electro-slag process differ from ordinary ingots by a more dense structure, absence of pipes, loose center structure, segregation and other defects. 4) The ultimate strength of EI847 steel slightly decreases after electro-slag remelting, and the yield limit increases. The higher yield limit is due to a decreased dendritic heterogeneity owing to the particular crystallization conditions in water-cooled copper ingot molds. There are 4 figures.

ASSOCIATION: Ordena Lenina zavod "Elektrostal'" im.I.F.Tevosyana (Order of Lenin "Elektrostal" Plant im.I.F.Tevosyan) - Yu.K. Vorob'yev, V.M. Doronin, M.M. Klyuyev, V.V. Topilin, N.A. Shiryayev, Ye. V. Voinovskiy; Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im.Ye.O.Patona ("Order of the Red Banner of Labor" Electric Welding Institute im.Ye.O.Paton AS UkrSSR) - B.I. Medovar, Yu.V. Latash and B.I. Maksimovich

Card 3/5 3

S/133/61/000/006/013/017
A054/A129

AUTHORS: Vinograd, M. I., Candidate of Technical Sciences, Goncharenko, M.S.
(Deceased), Doronin, V. M., Topilin, V. V., Chernina, B. G.,
Engineers

TITLE: Improving the technology of 347 (EI347) ball bearing steel

PERIODICAL: Stal', no. 6, 1961, 543-546

TEXT: In the structure of the EI347 type steel used in 1956-57 for the production of rings of 100 mm in diameter produced from steel sections or disks made of 200-300-kg ingots the ledeburite was not sufficiently divided, moreover, the amount of non-metallic inclusions was found to be too high. In order to improve the technology of this steel grade, tests were carried out with the cooperation of Candidate of Technical Sciences A. S. Sheyn, Engineers V. N. Gorskiy, V. P. Arkhipova, Ye. V. Laguntsova, S. A. Kiseleva, V. Ya. Rybakova, Technicians I. N. Bystrikova, Ye. P. Burdyukina, and I. P. Solodikhin. In all tests smelting took place by blowing oxygen through the bath and by bottom casting. The ladles were made of fireclay or mullite, the weight of the ingots was 300, 500 and 750 kg, from which billets 80 x 80 - 90 x 90 mm in size were made.

Card 1/4

Improving the technology of Ж347 (EI347) ...

S/133/61/000/006/013/017
A054/A129

The samples cut from strips 10-12 mm thick taken from the billets were heated in a salt bath to $1,220^{\circ} \pm 10^{\circ}\text{C}$ with 2 min 30 sec. holding time and annealed at $680^{\circ} - 700^{\circ}\text{C}$ for 1 hour, then cooled on air. The following six variants were tested (Table 1). Table 2 shows that the steel had the lowest percentage of non-metallic inclusions when the charge consisted of 35-60% high-speed steel scraps, 30-50% ШХ15 (ShKh15) steel waste, with the addition of 5-10% ferroalloys. In order to assess the effect of the ladle lining on the impurities, variant II was poured in a chamotte ladle, variant V in a mullite ladle and variant VI in a ladle lined with smooth ("planed") mullite. The best results were obtained with the mullite-lined ladle, the worst results with the ladle lined with smooth high-silicon bricks. It was established concerning the temperature that least siliceous and globular inclusions were found in the steel cast at $1,570^{\circ} - 1,600^{\circ}\text{C}$. The cleanest zone in the 500-kg and 750-kg ingots is that under the riser head, whereas the part containing most impurities was found in the center of the ingot. In order to obtain the required degree of non-uniformity in carbide structure of the steel, 750-kg ingots have to be used for the disks and 500-750-kg ingots for sectional steel 60-80 mm in diameter, while 300-kg ingots must be taken for sections with smaller diameter. In order to remove the surface defects, the ingots had to be cleaned to a depth of 5-8 mm. By applying this new

Card 2/4

S/133/61/000/006/013/017
A054/A129

Improving the technology of EI347 (EI347) ...

technology for EI347 grade steels, the waste in the finished product was less than 2%. There are 3 figures and 4 tables.

ASSOCIATION: TsNIICHM and zavod
"Elektrostal'"(Elektrostal'
Plant)

Table 1: Variants of smelting and pouring
EI347 grade steel:

Legend: 1 - composition of the charge,

%; 2 - scraps of high-speed steel;

3 - steel, ShKh15; 4 - tungsten-steel*

ingots, 5 - soft iron; 6 - ferro-alloys;

7 - lining of the ladle***; 8 - number

of castings, (ingots) having a weight

of, kg.; * Approximate composition:

0.76% C; 0.25% Si; 0.28% Mn; 0.03% S;

0.03% P; 2.4% Cr; 9.55% W; 0.70% V;

0.19% Mo; ** Including 8% of 1Kh13 steel;

*** Ш = Sh: chamotte; М = M: mullite;

Card 3/4

parameters Показатели	Номер варианта Number of variant					
	I	II	III	IV	V	VI
Состав шихты, % отходы сталей:						
1 быстрорежу- щей	25-30	45-50	10-20	20-25	35-60	35-40
3 ШХ15	25-30	40-45	40-45	40-45	35-50	35-45
4 вольфрам- сталь: ших- товые слитки	15-20	—	30-40	—	—	—
5 мягкое железо	15-20	—	—	15-20	—	10-15**
6 ферросплавы	5-10	5-10	5-10	10-15	5-10	10-15
7 футеровка ков- шей***	Ш	Ш	М	М	М	МС
8 Количество плав- ки, разлитых на слитки ве- сом, кг:						
300	—	—	—	2	—	—
500	4	1	2	—	3	—
750	4	6	4	8	10	10

S/133/61/000/012/004/006
A054/A127

AUTHORS: Vorob'yev, Yu.K.; Voynovskiy, Ye.V.; Doronin, V.M.; Klyuyev, M.
M.; Topilin, V.V.; Shirayev, N.A.

TITLE: The effect of the production technology on the quality of EI847
(EI847) steel

PERIODICAL: Stal', no. 12, 1961, 1,108 - 1,112

TEXT: Tests were carried out to establish the optimum technology for EI847 stainless steel smelted in 5-ton and 20-ton arc furnaces under various smelting conditions, applying also electroslag remelting and vacuum remelting. The EI847 steel contained 0.05 - 0.10% C, 14 - 17% Cr, 14 - 16% Ni, 2.5 - 3.5% Mo, 0.45 - 0.85% Nb, maximum 0.8% Si and Mn, maximum 0.02% S and maximum 0.03% P. This steel shows sufficient strength and a high ductility up to 700°C. In the various smelting processes soft iron, fresh ferro-alloys, carbon steel scrap [Y7 - Y12 (U7 - U12); 10 - 45], Armco iron, soft low-carbon iron, H-1 (N-1) nickel, Xp. 00000 (Khr. 00000) and Xp. 0000 (Khr. 0000) ferrochrome, molybdenum and manganese metal were used. Round 500-kg ingots were cast by bottom casting. To reduce the amount of nonmetallic inclusions in the metal and

Card 1/4

S/133/61/000/012/004/006

The effect of the production technology on the quality A054/A127

to improve its mechanical properties, the test steel was also subjected to electroslag remelting and vacuum-arc remelting. The former was carried out in the P-909 (R-909) type installation of the "Dneprospetsstal" Plant with a 250-mm diameter mold under the following conditions:

Slag	AHΦ -6 (ANF-6)	A (A) AHΦ-1Π (ANF-1P)
Slag composition, %:		
CaF ₂	70	40
CaO	—	30
Al ₂ O ₃	30	30
Current density, amp/mm ²	0.20-0.34	0.23-0.29
Electric power consumption, kwh/ton	1,115	1,370
Output, kg/h	122.4	99.0

The ingots obtained by electroslag remelting are characterized by a compact structure and controlled solidification; the dendrite boundaries are less strongly marked than in ingots smelted under the standard conditions. The vacuum-arc remelting process was carried out in a furnace with a mold-diameter of 375 mm and a residual pressure of 10^{-1} - 10^{-2} mm Hg. 500-kg ingots were used

Card 2/4

S/133/61/000/012/004/006
A054/A127

The effect of the production technology on the....

as consumable electrodes. This method proved less efficient than electroslag remelting. The ingots subjected to this process have to be roughed before forging, in the same way as the conventional ingots, while this is not necessary for ingots remelted by the electroslag process. The chemical composition of EI847 steel after vacuum remelting only changed in such a way that some silicon, niobium and manganese cinder was formed, whereas after electroslag remelting there is some sulfur and silicon cinder. The silicon content decreased in the various heats by about 0.05 - 0.15%. The niobium-carbon ratio is at least 8 in the steel produced by the various methods tested and electroslag remelting. This ratio ensures a high resistance to intergranular corrosion when checked according to the AM(AM) method [ГОСТ 6032-58 (GOST 6032-58)]. As to nonmetallic inclusions the purest grade was obtained when smelting a fresh charge with rimming and deoxidizing with aluminum powder under white slag and by adding niobium in the form of a nickel-niobium master alloy or ferro-niobium with a low silicon content, followed by electroslag remelting. The amount of nonmetallic inclusions decreased in this way by a factor of 1.5 - 4. The technological ductility of EI847 steel increased when casting took place under the conditions described above. An additional reduction of the bath at the end of the refining period by metallic calcium increases the amount of brittle silicate

Card 3/4

The effect of the production technology on the

S/133/61/000/012/004/006
A054/A127

and globular inclusions, but, at the same time also raises the steel ductility at high temperatures (this is contrary to the general opinion that inclusions lower the steel ductility). The highest degree of ductility in hot deformation (torsion) can be obtained in steel remelted with ANF-1P slag and a test slag containing 30% Al_2O_3 , 30% CaO and 40% CaF_2 . Vacuum-remelted steel is more ductile at 1,000 - 1,100°C than steel produced by electros slag remelting, at 1,150°C the ductility is about the same for both kinds of steel, while at higher temperatures the ductility of vacuum steels decreases and that of electros slag-remelted steels does not change up to 1,300°C. The electros slag remelting tests were carried out by S.A. Leybenzon, Engineer ("Dneprospetsstal" Plant) and B. I. Medovar, Doctor of Technical Sciences, Yu.V. Latash, Candidate of Technical Sciences and B.I. Maksimovich, Engineer [Institut elektrosvarki im. Ye.O. Patona (Electric Welding Institute im. Ye.O. Paton)]. There are 5 figures, 4 tables and 3 Soviet-bloc references.

ASSOCIATION: Zavod "Elektrostal'" ("Elektrostal'" Plant)

Card 4/4

DORONIN V.M.

34463

S/125/62/000/003/008/008
D040/D113

1.2300

AUTHORS: Klyuyev, M.M., Topilin, V.V., Voynovskiy, Ye.V., Rezanov,
D.P., and Doronin, V.M.

TITLE: An investigation of optimum conditions for eliminating oxygen
and oxide inclusions in electro-slag remelting.

PERIODICAL: Avtomaticheskaya svarka, no. 3, 1962, 86-87

TEXT: The effect of shielding of the slag pool and the end of the consumable
electrode, the electrode surface state, and the use of fresh and spent slag
on the elimination of oxygen and inclusions in electro-slag remelting, was
studied on heat-resistant ЭП 65 (ЭН 961Ф) [EP65 (EI961P)] steel. Ingots,
1200-1250 kg in weight and 425 mm in diameter, were cast in an P-951 (R-951)
unit. Remelting was tried with fresh and used АНФ-6 (ANF-6) fluxes, with
scale-coated and scale-free electrodes. Shielding by nitrogen and carbon
tetrachloride with and without a lid on the mold was also used. Best re-
sults were obtained with scale-free electrodes, fresh slag with a low con-

Card 1/3

An investigation ...

S/125/62/000/003/008/008
D040/D113

tent of nondurable oxides (SiO_2 , FeO , Cr_2O_3 , MnO) and shielding of the slag pool. Best shielding results were obtained with a lid on the mold. The oxygen content was reduced from 0.005% in the electrode to an average of 0.003% in the ingot after remelting; the content of oxide and silicate inclusions dropped by slightly over 50%. Introductions of nitrogen under the shielding lid further reduced the oxygen content from 0.005 to 0.002%, and the content of inclusions dropped correspondingly. It was stated that the top of electro-slag ingots, consisting of metal solidified after the furnace has been switched off, contained more oxygen than the tail portion where the oxygen content was 2-2.5 times less than in the initial metal. The use of spent slags for remelting EP65 steel does not help to eliminate oxygen and results in more globular inclusions. The composition of nonmetallic inclusions in comparison to the initial metal and through the height of electro-slag ingots, is different due to increased content of silica, iron oxides, chromium and manganese, and reduced alumina content. Metal remelted by electro-slag process with the use of the investigated shielding methods has an improved plasticity and impact strength in tests of longitudinal and

Card 2/3

An investigation ...

8/125/62/000/003/008/008
DO40/D113

particularly transverse specimens, as well as less anisotropic mechanical properties. It was stated that the impact strength of metal, particularly in transverse specimens, increased with diminishing content of oxide inclusions. [Abstracter's note: Complete translation]

Card 3/3

TOPILIN, V.V.; KLIUYEV, M.M.; VOYNOVSKIY, Ye.V.; ~~XXXXXXXXXXXXXXXXXXXX~~ DORONIN, V.M.; ROZANOV, D.P.

Electric slag remelting of heat-resistant, stainless steels. Stal.
23 no.9:805-809 S '63. (MIRA 16:10)

S/133/63/000/002/013/014
A054/A126

AUTHOR: Doronin, V.M., Engineer

TITLE: Heat treatment and mechanical properties of 1X12H2 BMΦ
(1Kh12N2VMF) grade steel

PERIODICAL: Stal', no. 2, 1963, 162 - 166

TEXT: The effect of heat treatment and the composition of heat-resistant 1Kh12N2VMF [3H961 (EI961)] grade were studied (in cooperation with M.I. Ovcharenko and A.M. Yevteyeva, Technicians). The grade [according to ГОСТ (GOST) 5632-61] consists of 0.10 - 0.16% C, 10.5 - 12.0% Cr, 1.5 - 1.8% Ni, 1.5 - 2.0% W, 0.35 - 0.50% Mo, 0.18 - 0.30% V, maximum 0.6% Si, and maximum 1.10% Mn. The conditions of austenite formation, the stability of austenite and its dependence on the temperature of austenitizing were established. A complete isothermal decomposition and a required ($H_B \leq 269$) hardness of the grade are obtained after austenitizing at 1,150 - 1,200 °C, with isothermal holding times at 650 °C of 40 and 60 h, respectively. When heat treatment conditions are determined, regard should be had to the fact that the EI961 grade (between 1,000 and

Card 1/2

Heat treatment and mechanical properties of

S/133/63/000/002/013/014
A054/A126

1,100°C) is near the double-phase range. Thus, any modification of the content of its components - even within the allowed limits - affects its mechanical characteristics. Therefore, upon an additional alloying with ferrite-forming and austenite-forming elements, other substances should also be added in equivalent amounts. Of the ferrite forming elements, 0.3 - 0.5% molybdenum increases the steel strength, while vanadium and silicon have a strengthening effect only if their amounts are under 0.25%; Cr, W, P, S lower the strength of the steel. The optimum combination of strength and ductility is obtained in the EI961 grade in the final heat treatment at an annealing temperature of 560°C, if the steel is to be used for operations at temperatures not too high, whereas if it is used at higher temperatures, the annealing temperature should be 690 - 700°C. The effects of carbon, the ferrite and austenite forming elements on the mechanical characteristics of the EI961 grade after heat treatment (annealing at 560 and/or 690°C) are given. There are 5 figures and 1 table.

Card 2/2

OREKHOV, G.N., inzh.; ALEKSEYENKO, M.P.; EUSHMANOVA, Ye.L.; DORONIN, V.M.

New economic carburizing EP176 (13KhN2MA) steel. Vest.mashinosts.
43 no.3:42-44 Mr '63. (MIRA 16:3)

(Steel)

L 13053-55 EWT(m)/ENA(d)/ENP(t)/ENP(b) ASD(m)-3 JB/PLK

ACCESSION NR: AT4046848

S/0000/64/000/000/0236/0242

AUTHOR: Bamy*kh, O. A., Zudin, I. F., Candidate of technical sciences; Estulina, Ye. G., Dzugutov, M. Ya., Doronin, V. M., Topilin, V. V.

TITLE: Investigation of the phase composition and properties of chromium-manganese-aluminum steel

SOURCE: AN SSSR. Nauchnyy sovet po probleme zharoprochnykh splavov.

Issledovaniya staley i splavov (Studies on steels and alloys) Moscow, Izd-vo Nauka, 1964, 236-242

TOPIC TAGS: steel structure, steel phase composition, alloy steel, steel plasticity, steel oxidation, chromium steel, manganese steel, aluminum steel

ABSTRACT: X-ray and microstructural analyses were used to examine the structure and phase composition of 8 samples of carbon (0.5%) - manganese (15%) - aluminum (3%) - based steel with chromium (14-25%), nickel (to 3%) and copper (2.6%) additions in an attempt to develop steel brands with enhanced scale resistance. The 18-19 mm long rod-shaped samples were rolled at 1180C from 45-kg steel ingots prepared by pouring melts directly into molds at 1500-1560C. The integral intensity of the austenitic (111) line, ferritic (110) line, and (419), (212), and (411) δ -phase lines were determined using an iron-emission

Card 1/2

L 13053-65

ACCESSION NR: AT4046848

URS-50I apparatus for angles of 27-30° in samples quenched from 1100C and aged at 700C for 40 hrs. The effect of hardening at 550-800C, and temperature (550-800C) and duration (to 100 hrs.) of aging on the microstructure and hardness was also investigated, and the scale-resistance was determined from weight gain by the previously described method of continuous weighing. The results show that: 1) treatment at 550-800C of steels with chromium contents in excess of 18% results in brittleness due to the formation of a δ phase; 2) steel with less than 18% chromium retains adequate plasticity after aging at 700C; and 3) scale resistance at 900C is greater in samples with an aluminum content in excess of 2.5%, while aluminum additions at 1000C and chromium additions of 18-25% at both temperatures have little effect on scale resistance. Orig. art. has: 6 tables, 4 figures and 1 formula.

ASSOCIATION: None

SUBMITTED: 16Jun64

ENCL: 00

SUB CODE: MM

NO REF SOV: 005

OTHER: 001

Card 2/2

L 20078-65 ENT(m)/ENP(b)/T/ENA(d)/ENP(t) MJW/JD
ACCESSION NR. AP404910' S/0129/G4/000/011/0037/0038

AUTHOR: Gol'denberg, A. A.; Doronin, V. M.; P'yankova, I. D.

TITLE: The optimal range for heat treatment of steel 1Kh12N2VMF

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 11, 1964, 37-38

TOPIC TAGS: steel tempering, steel quenching, steel heat treatment, steel mechanical property: steel 1Kh12N2VMF

ABSTRACT: Rod-shaped samples of steel 1Kh12N2VMF (0.12% C, 11.12% Cr, 1.64% Ni, 0.46% Mo, 0.22% V, 0.33% Si, 0.42% Mn, 0.016% S, and 0.022% P), 20 mm in diameter, were heated to 780C and cooled in the furnace to 500C. Effects of heating and cooling rates were studied by cooling samples in oil at intervals from 100C to 500C for 0.1, 0.2, 0.4, and 0.8 sec. Mechanical properties, microstructure, and carbide analyses were determined as functions of heat treatment. Hardness and other properties were determined as functions of heat treatment. The hardening temperature for this steel was found to be 1000-1050C. The best combination of curability and ductility ($C\% = 110\text{kg/mm}^2$ and $a_k = 10-12\text{ kg-m/cm}^2$) was achieved after quenching and tempering at 570-580C. Orig. art. has: 4 graphs and 1 photomicrograph.

Card 1/3

L 20078-65
ACCESSION NR: AP4049107

2

ASSOCIATION: Vsesoyuzny'y zaochny'y mashinostroitel'ny'y institut (All-Union Machine
Design Correspondence Institute); Zavod "Elektrostal'" ("Elektrostal'" Plant)

SUBMITTED: 00

ENCL: 01

SUB CODE: MM

NO REF SOV: 000

OTHER: 000

Card 2/3

L 20078-65
ACCESSION NR: AP4049107

ENCLOSURE: 01

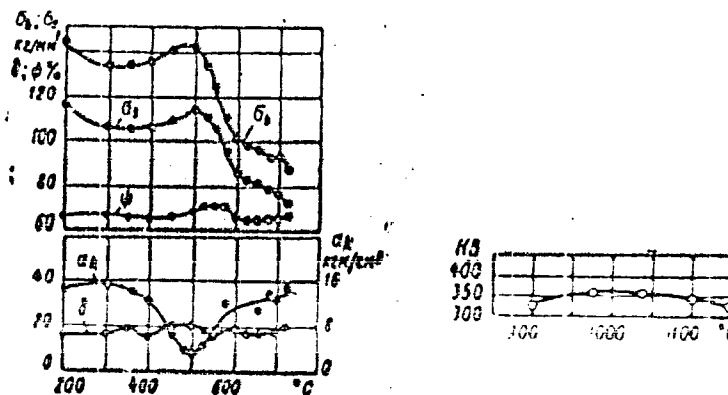


Fig. 1. (upper graph) Mechanical properties of steel 1Kh12N2VMF as a function of tempering temperature (σ_b , σ_s in kg/mm², δ , ψ in %). (Quenched from 1000°C.) (lower graph) Hardness as a function of quenching temperature (HRC in %).

Card 3/3

DORONIN, V.M.; IVANOV, A.G.; KRUCHININA, Ye.V.; UGLOVA, A.M.

Hardenability of ShKh15, 9KhS and KhVG steels. Standarti-
zatsiia 28 no.1:17-23 Ja '64. (MIRA 17:1)

GOL'DENBERG, A.A.; DORONIN, V.M.; P'YANKOVA, I.D.

Optimal conditions for the heat treatment of IKh12N2VMF steel.
Metalloved. i term. obr. met. no.11:37-38 N '64. (MIRA 18:4)

1. Vsesoyuznyy zaochnyy mashinostroitel'nyy institut i zavod "Elektrostal".

(N) L 12141-66 EWT(d)/EWT(m)/EWP(w)/EWP(c)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/
 ACC NR: AP6000598 EWP(b)/EWP(i)/ETC(m) UR/0133/65/000/012/1126/1129
 MJW/JD/WW
 AUTHOR: ^{44,55} Shiryayev, N.A.; ^{44,55} Doronin, V. M.
 ORG: none
 TITLE: Improving the macrostructure of ingots of EI961 steel
 SOURCE: Stal', no. 12, 1965, 1126-1129
 TOPIC TAGS: metal casting, nonmetallic inclusion, metal inspection, x ray analysis//
 EI961 steel
 ABSTRACT: Ingots of EI961 (1Kh12N2VMF) steel (0.10-0.16% C, ≤0.60% Si, ≤0.60% Mn, 0.030% S, 0.030% P, 10.0-12.5% Cr, 1.5-2.0% W, 1.4-1.8% Ni, 0.35-0.50% Mo, 0.18-0.30% V) tend to display a pronounced axial shrinkage porosity accompanied by clusters of nonmetallic inclusions which leads to the formation of defects -- lamination in forgings, detected by ultrasonic inspection. X-ray structural analysis established that the oxide films coating the metal surface at the sites of lamination represent spinels of the FeO·Cr₂O₃ type. Hence, the possibilities for improving the techniques of production of these ingots so as to decontaminate the metal and eliminate axial porosity in ingots have been investigated at the Elektrostal' Plant. Since modifications of the charge-blending and melting regime did not produce the desired effect, attention was centered on the effect of ingot and mold parameters and pouring con-

1/2

2

L 12141-66

ACC NR: AP6000598

ditions on the compactness of the axial zone of the ingot. It was thus found that reducing the h/d_{av} (height-to-mean diameter) ratio from 3.22 to 0.59 completely eliminated axial porosity. Increasing the angle of taper K of the ingot also contributes to eliminating axial porosity, but to a smaller degree. Use of thin-walled molds makes it possible to retard the cooling of the ingots and contributes to reducing the degree of development of porosity. A relationship was established between the criterion $h/d_{av} \cdot K$ (where K is angle of taper of the ingot, in %) and the contamination of EI961 steel by nonmetallic inclusions. The lower $h/d_{av} \cdot K$ is, the lower is this contamination. It may be assumed that this rule applies also to other steels (e.g. ball bearing steel). The weight G of the ingot also affects contamination: all other things remaining equal, contamination is smaller in smaller ingots. Thus, the general criterion of ingot quality may be represented by $\phi hG/Kd_{av}$, where the coefficient ϕ takes into account the pouring temperature of the metal and its heat conduction, specific heat, viscosity, and surface tension at the interface of the inclusions and liquid phase. Orig. art. has: 4 figures, 3 tables.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

HW

L 40826-66 EWT(d)/EWT(l)/EWT(m)/EWP(c)/EWP(v)/T/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l)
 ACC NR: AP6020976 IJP(c) WW/JB/WB SOURCE CODE: UR/0113/66/000/003/0031/0033

AUTHOR: Verner, K. A.; Doronin, V. M.; Buynov, A. F.; Syrkin, P. E.; Letchford, N. I.

ORG: NAMI: "Elektrodetal'" Plant (Zavod "Elektrodetal'"); Gor'kiy Automobile Plant (Gor'kovskiy avtozavod)

TITLE: Chrome-manganese-nickel steel with nitrogen for internal combustion exhaust valves

SOURCE: Avtomobil'naya promyshlennost', no. 3, 1966, 31-33

TOPIC TAGS: internal combustion engine, valve, high temperature steel, chromium, manganese, nickel, hardness, durability, engine reliability, *CHROMIUM STEEL, MANGANESE STEEL, NICKEL STEEL / EP303 HIGH TEMPERATURE STEEL*

ABSTRACT: The authors discuss and criticize various grades of steel used for valve production. A comparison of existing grades of steel for valve production shows that EP303 steel is best suited for this purpose. It retains its hardness at temperatures of 700-900°C. This shows that it can withstand temperatures from 50 to 100 degrees higher than EI69 and EP48 steels. EP303 steel was tested for thermal stability to determine its resistance to scale formation in air and corrosion resistance in lead oxide at 900°C. EP303 steel compares favorably with the other grades of steel tested. The test results were used as a basis for trying out this steel in the mass production of valves. The manufacturing process is discussed. Valves made from EP303 and EP48

Card 1/2

UDC: 621.431.73:62-332.002.2

L 40826-56

ACC NR: AP6020976

steels were then compared on ¹⁴test stands and under operating conditions. These tests were carried out at the Gor'kiy Automobile Plant. The valves were tested in GAZ-51, GAZ-51a and GAZ-21d engines and others. High octane gasoline was used throughout the test since it develops high temperature conditions. Tests showed that valves made from EP303 steel retain their clearances throughout the test period in contrast to those made from EP48 steel. The data acquired during stand testing are in agreement with operational data. Valves made from EP303 steel have a hardness of HRC 38. These valves operate very well in GAZ engines and improve engine reliability. The service life of the new valves is triple that of valves with a built up VKhN-1 facing, and more than four times that of valves made from EP48 steel. The production of EP303 steel has been adopted by the Gor'kiy Automobile Plant for making the exhaust valves of GAZ and ZMZ engines. Orig. art. has: 4 figures, 1 table. 2

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 001

Cord 2/2 MLP

L 09139-67 EWT(m)/EWP(w)/EWP(t)/ETI/EWP(k) IJP(o) JD/HW

ACC NR: AP6027294

SOURCE CODE: UR/0133/66/000/008/0735/0738

AUTHOR: Doronin, V. M.; Stepanov, V. P.; Dzugutov, M. Ya. 28

ORG: "Elektrostal'" Plant (Zavod "Elektrostal'")

TITLE: Softening heat treatment of large forgings made from martensite steel

SOURCE: Stal', no. 8, 1966, 735-738

TOPIC TAGS: martensite steel, metal heat treatment, steel forging

ABSTRACT: EI961, EP65 and other types of high temperature steel characterized by high austenite stability are not suited to continuous retarded cooling after forging. This is explained by the fact that continuous retarded cooling after forging does not ensure the elimination of cracks in large forgings. A successive softening heat treatment process was developed at the "Elektrostal'" Plant which completely eliminates such defects in crack sensitive steel. This new heat treatment process was tested under industrial conditions and proved to be highly reliable. The process can be recommended for grades of steel of this type provided that the necessary corrections are considered such as the stability of supercooled austenite, crack sensitivity of the given steel, forging dimensions, shrinkage and the particular design of furnace equipment. Orig. art. has: 3 figures, 1 table.

SUB CODE: 11/ SUBM DATE: None/ ORIG REF: 004/ OTH REF: 001

Card 1/1 nat

UDC: 669.14.018.45

L 43942-66 EWT(d)/EWT(m)/I/ENP(f)/ENP(t)/ETI LJP(c) JT/WB/JD

ACC NR: AP6027296

SOURCE CODE: UR/0133/66/000/008/0742/0745

583

AUTHOR: Doronin, V. M.; Topilin, V. V.; Verner, K. A.; Buynov, A. F.

ORG: Elektrostal' Plant (Zavod Elektrostal'); Scientific Research Automobile and Automotive Institute (N-1. avtomobil'nyy i avtomotorny institut); Gorky Automobile Plant (Gor'kovskiy avtomobil'nyy zavod)

TITLE: New steel for exhaust valves of internal-combustion engines

SOURCE: Sverdlovsk, no. 8, 1966, 742-745

TOPIC TAGS: austenitic nickel steel, manganese containing steel, nitrogen containing steel, exhaust valve steel

ABSTRACT: A new age-hardenable austenitic 5Kh20N4AG9 (EP 303) steel (0.50—0.60% C, 8.0—10.0% Ni, 19—23% Cr, 3.5—4.5% Mn and 0.3—0.5% N) has been developed. The steel is fully austenitic and is strengthened by the precipitation of carbonitrides. The steel, annealed at 1180C, water quenched, and aged for 10—15 hr at 770C, has an Rc hardness of 31—32. At 700, 800 and 900C the respective tensile strength was 50, 30, and 20 kg/mm² and the 100-hr rupture strength was 20, 10, and 5 kg/mm². The steel has high oxidation resistance. The weight increase in 300 hr at 900C amounted to 12.3 kg/m². The corrosion susceptibility of the steel is lower than that of other valve steels. The weight loss in exhaust gases containing PbO, PbO₂, and 2H₂O-PbBr₂ at 850—900C amounted to 3047 g/m²·hr compared to 5080 g/m²·hr for

Card 1

UDC: 669.14.018.8

ACCIDENT

ACCIDENT

EP69 steel. In terms of dimension stability, the EP203 valve grew by 0,16 mm in 215 hr compared to 0,07 mm for EP48 steel. Under operational conditions, the EP203 valves had 10% longer service life than EP48 valves. Orig. art. has: 9 figures and 2 tables. [10]

SUB CODE: 191/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 004/ ATD PRESS: 004/

precipitation margining

Card 2/2

L 0020-07		LTP(e)/LTP(w)/LTP(k)/LTP(t)/LTP(l) LTP(c)		LTP/JD/LL/LL/LL	
ACC NR:	AP6027298	SOURCE CODE: UR/0133/66/000/008/0748/0751			
AUTHOR: Svistunova, T. V.; Doronin, V. M.; Kruzhkov, V. I.; Topilin, V. V.; Dzugutov, M. Ya.; Vinogradov, Yu. V.; Chernenskaya, N. F.; Kordonov, B. A.					
ORG: "Elektrostal'" Plant (Zavod "Elektrostal'"); TsNIICHM					
TITLE: Corrosion resistant nickel-based alloys					
SOURCE: Stal', no. 8, 1966, 748-751					
TOPIC TAGS: corrosion resistant alloy, intergranular corrosion, nickel base alloy, fatigue strength					
ABSTRACT: The authors study and compare corrosion resistance of various types of nickel-based alloys. The welded joints of these alloys are subject to intercrystalline corrosion in aggressive media. Methods are discussed for eliminating this phenomenon. Among these methods are heat treatment of the welded joints, reduction of carbon and iron content in the alloys and the introduction of carbide-forming elements. It was found that intercrystalline corrosion could be eliminated by alloying N70M27 alloy with 1.4-1.7% vanadium. This eliminates intercrystalline corrosion in welded joints up to 6 mm thick without requiring heat treatment. The new alloy is designated EP496. It was also found that intercrystalline corrosion could be eliminated in chromium-nickel-molybdenum alloys by reducing their carbon-silicon and iron content. The new					
Card 1/2		UDC: 669.14.018.8			

L 09250-67

ACC NR: AP6027298

alloy is designated EP567. Both of these new alloys have a fatigue limit of 5-7 kg/mm² at 1200°C which is 3-4 times higher than that of Kh18N9T steel. A new process is developed for melting and pressure working these alloys to satisfactory deformability. EP496 and EP567 alloys are melted in open induction furnaces with 500 and 1000 kg capacity. The ingots are worked on snagging machines until all defects are removed from their surfaces. Both alloys are difficult to machine, nevertheless, they can be roughed with much less difficulty than Kh18N10T steel. Deformation temperatures for both alloys are given. Both of these alloys have excellent corrosion resistance in hydrochloric and sulfuric acids at various temperatures and concentrations. The welded seams of these alloys are not subject to intercrystalline corrosion and therefore can be recommended for welded sheet structures and tubes used in the chemical and petroleum industries. Orig. art. has: 6 figures, 2 tables.

SUB CODE: 11/ SUBM DATE: None/ ORIG REF: 003/ OTH REF: 005

Cord 2/2

L 41073-66 EWT(m)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/WB/DJ

ACC NR: AP6027299

SOURCE CODE: UR/0133/66/000/008/0752/0755

AUTHOR: Doronin, V. M.; Smirnov, V. V.; Klyuyev, M. M.; Alekseyenko, M. F.;
Orekhov, G. N.

ORG: none

TITLE: Stainless heat-resistant 15Kh16N2M steel

SOURCE: Stal', no. 8, 1966, 752-755

TOPIC TAGS: CORROSION RESISTANT STEEL, stainless steel, martensitic ~~stainless~~ steel, ~~martensitic~~ heat resistant steel, ~~50410~~ mechanical property, ~~steel heat resistance~~, ~~steel corrosion resistance~~/15Kh16N2M stainless steel

ABSTRACT: A new stainless and heat-resistant steel designated 15Kh16N2M has been developed for use in parts operating under stresses at elevated temperatures up to 500C in marine or tropical atmospheres. The steel is intended to replace previously used 1Kh12N2VMF, 13Kh14NVFRA, Kh17N2, and ~~II-1~~ steels. The two former are heat resistant at temperatures up to 500—600C but are susceptible to corrosion in marine and tropical atmospheres. The latter two have a high corrosion resistance but are not suitable for operation at temperatures over 400C. In addition, Kh17N2 steel has a poor forgeability owing to a two-phase structure with a delta-ferrite content of up to 40%. 15Kh16N2M steel has none of the above disadvantages. It contains 0.12—0.18% carbon, 15.0—16.5% chromium, 2.0—2.5% nickel, 1.2—1.5%

Card 1/3

UDC: 669.14.018.45.8

L 41073-66

ACC NR: AP6027299

molybdenum, and 0.005—0.12% nitrogen. Steel austenitized at 1040—1050C (optimum temperature) and oil quenched has a martensitic structure with 5—10% deltaferrite. The best combination of strength and ductility (for elevated temperature service) is achieved by tempering at 500—550C or 660—680C (see Fig. 1) At 500C, steel

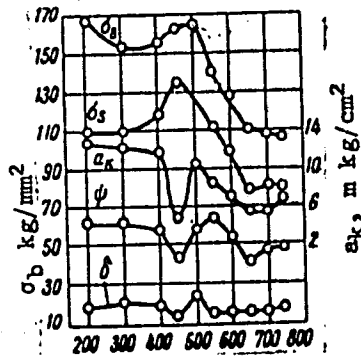


Fig. 1. Tempering temperature dependence of tensile strength (σ_b), yield strength (σ_s), elongation (δ), reduction of area (ψ), and notch toughness (α_k) of 15Kh16N2M steel, oil quenched from 1050C.

tempered at 580C had a 100 hr rupture strength of 45 kg/mm², a 500 hr rupture strength of 40 kg/mm², a creep strength of 27 kg/mm² (for 0.2% total creep in 100 hr), and a fatigue strength of 45 kg/mm² for smooth specimens and 26 kg/mm² for notched specimens. Conventionally arc-melted steel has a rather high anisotropy of

L 41073-66

ACC NR: AP6027299

mechanical properties, which can be greatly reduced by electroslag melting. The corrosion resistance of 15Kh16N2M steel is close to that of Kh17N2 steel, but the former is not susceptible to pitting. Orig. art. has: 5 figures and 4 tables. [DV]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001/ ATD PRESS: 5057

Cont 2/3 11h

VINOGRAD, M.I., kand.tekhn.nauk; GONCHARENKO M.S., inzh. [deceased];
DORONIN, V.M., inzh.; TOPILIN, V.V., inzh.; CHERNINA, B.G., inzh.;
Prinimali uchastiye: SHEYN, A.S., kand.tekhn.nauk; GORSKIY, V.N.,
inzh.; ARKHIPOVA, V.P., inzh.; LAGUNTSOVA, Ye.V., inzh.;
KISELEVA, S.A., inzh.; RYBAKOVA, V. Ya., inzh.; BYSTRIKOVA, I.N.,
tekhnik; BURDYUCHKINA, Ye.P., tekhnik; SOLODIKHIN, I.P., tekhnik.

Improving the process of making EI347 steel for bearings.
Stal' 21 no.6:543-546 Je '61. (MIRA 14:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy
metallurgii i zavod "Elektrostal".
(Bearing metals)

L 11196-67 EMT(d)/EMT(m)/EMP(k)/EMP(h)/EMP(f)/EMP(v)/EMP(l) FDN/DJ
ACC NR: AR6030391 SOURCE CODE: UR/0273/66/000/006/0028/0028

AUTHOR: Verner, K. A.; Buynov, A. F.; Doronin, V. M.

TITLE: Austenite steel with low nickel concentration for the exhaust valves in internal combustion engines operating at temperatures up to 900°C

SOURCE: Ref. zh. Dvigateli vnutrennego sgoraniya, Abs. 6.39.188

REF SOURCE: Tr. Tsentr. n.-i. avtomob. i avtomotorn. in-ta, vyp. 81, 1966, 66-68

TOPIC TAGS: engine exhaust system, high temperature valve, internal combustion engine, low alloy steel, austenite steel

ABSTRACT: EP303 low-alloy chrome-manganese-nickel austenite steel has been developed for the exhaust valves in internal combustion engines operating at temperatures up to 900°C. Heat treatment conditions have been worked out for producing high mechanical properties in EP303 steel at high temperatures. The hardness (HRC up to 38) resulting from heat treatment of the valves obviates the necessity for using hard metal surfacing or special caps on the ends of the valve rods. EP303 steel has satisfactory technological properties during steel production and manufacturing of the valves. Exhaust valves made from EP303 steel ensure reliable engine performance, a stable heat gap, lower deformation of the valve plates and an increase in their service life by a factor of 2 compared with EP48 steel valves. The "Elektrostal" Plant has worked all "bugs" out of the production of EP303 steel throughout the entire metallurgical cycle. EP303 steel has been introduced by the Gorky Automobile Plant in production of exhaust valves for the GAZ and ZMZ engines. [Translation of abstract]

SUB CODE: 21, 11, 13

UDC: 669.14.621.431.73-332

Card 1/1 jb

ACC NR: AT6034459

(A)

SOURCE CODE: UR/0000/66/000/000/0228/0231

AUTHOR: Doronin, V. M.; Topilin, V. V.; Verner, K. A.; Buyov, A. F.

ORG: none

TITLE: New heat resistant steel for the exhaust valves of internal combustion engines

SOURCE: AN SSSR. Institut metallurgii. Svoystva i primeneniye zharoprochnykh splavov. (Properties and application of heat resistant alloys). Moscow, Izd-vo Nauka, 1966, 228-231

TOPIC TAGS: heat resistant steel, valve, internal combustion engine

ABSTRACT: Existing steels with complete phase transformation, Types 4Kh9S2, 4Kh10S2M (EI107), and EI992 have high critical points but at temperatures above 750° have low strength and insufficient corrosion resistance. For this reason, a new economically alloyed austenitic steel Type EI303 has been developed; it has the following chemical composition: 0.5-0.6% C; 8-10% Mn; 19-22% Cr; 3.5-4.5% Ni; 0.5-1.0% Mo; 0.3-0.5% N. The steel is melted in electric arc furnaces. The nitrogen is introduced in the form of nitrated ferrochrome with a content of from 1.5 to 7% nitrogen. The degree of absorption of nitrogen by the metal, at small concentrations, is about 70% of the amount introduced. With an increase in the amount introduced, the absorption drops to about 54%. The final nitrogen content in steel EI303 tends toward a constant value of

Card 1/2

ACC NR: AT603459

the order of 0.34-0.37%. A table shows the tensile strength of a number of valve steels, including the new alloy. A further table shows the comparative corrosion resistance of these alloys at 900°C. The new alloy is shown to be superior on all counts for valve construction. Orig. art. has: 3 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: 10Jun66/ ORIG REF: 001/ OTH REF: 001

21/

Card 2/2

ACC NR:AP7006946 SOURCE CODE: UR/0129/67/000/001/0046/0048

AUTHOR: Verner, K. A.; Zelenova, V. D.; Doronin, V. M.; Buynov, A. F.

ORG: NAMI; GAZ; "Elektrostal'" Factory (Zavod "Elektrostal'")

TITLE: The effect of phosphorus on the structure and properties of 5Kh20N4AG9 steel

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 1, 1967, 46-48

TOPIC TAGS: austenitic steel, ^{steel structure,} precipitation hardenable steel, phosphorus, ~~containing steel~~, chromium, ~~containing steel~~, manganese, ~~containing steel~~, molybdenum, ~~containing steel~~, nickel, ~~containing steel~~, nitrogen, ~~steel property~~, phase composition, valve, exhaust valve, ~~steel~~ mechanical property/ 5Kh20N4AG9 steel

ABSTRACT: The effect of phosphorus on the mechanical properties, structure, phase composition, and dispersion strengthening of austenitic 5Kh20N4AG9 steel (0.51-0.60%C, 0.36-0.86%Si, 8.61-8.95%Mn, 20.2-21.2%Cr, 3.95-5%Ni, 0.68-0.73%Mo, 0.24-0.36%N, 0.016-0.42%P), used for engine exhaust valves, has been investigated. Ingots were forged at 1160-950°C

Card 1/2 UDC: 669.14.018.8:620.17:620.18

ACC NR:AP7006946

rolled to bars 20-25mm in diameter, and made into valves which were austenitized at 1150-1200°C, quenched, and aged at 700-800°C. Alloying 5Kh2ON4AG9 steel with phosphorus increased the mechanical properties at room and high temperatures. For instance, at 20 and 800°C, steel with 0.16%P and 0.72%Mo (Mo added up to 1% retards grain growth which is increased by P) has, respectively, a tensile strength of 133, and 44 kg/mm², an elongation of 6 and 10%, a reduction of area of 10 and 18%, notch toughness of 1.38 and 3.63 kgm/cm², and a Brinell hardness of 393 and 124 compared to 103 and 34 kg/mm², 8 and 25%, 10 and 28%, an undetermined notch toughness, and an HB hardness of 302 and 109, at 20 and 800°C respectively, for 5Kh2ON4AG9 steel containing 0.04%P. Steel containing 0.2%P and up to 1% Mo had the best combination of mechanical properties. Up to 0.2%P intensifies dispersion strengthening. After quenching, the phosphorus, dissolved in austenite, increases the lattice parameter, brings about strain and stress in the lattice, and increases the rate of precipitation of chromium carbide (Cr₂₃C₆) and nitride (Cr₂N), but P itself remains in the solid solution. Orig. art. has: 1 figure and 1 table.

[WW]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001

Card 2/2

DORONIN, V.N.; NIKOLAYEV, A.M.

Ultimate load of a pulsed extraction column. Izv. vys. ucheb.
zav.; khim. i khim. tekhn. 7 no.3:497-500 '64.

(MIRA 17:10)

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni Kirova,
kafedra khimicheskogo mashinostroyeniya.

DORONIN, V.N.; NIKOLAYEV, A.M.

Mass transfer in a pulse extraction column with rotating stream.
Izv. vys. ucheb. zav.; khim. i khim. tekhn. 7 no.4:665-668 '64.

(MIRA 17:12)

1. Kafedra khimicheskogo mashinostroyeniya Kazanskogo khimiko-
tekhnologicheskogo instituta imeni S.M. Kirova.

DORCHIN, V.N., inzh.; NIKOLAYEV, A.M., doktor tekhn.nauk

Investigating a pulse extraction column with rotary flow.
Khim. i neft. mashinostr. no.2:5-6 F '65.

(MIRA 18:4)

DORONIN, V.V.

Studying the kinetics of the spontaneous disintegration of
potassium ferrate in a potash-water medium. Trudy Sib.tekh.inst.
no.24:37-45 '59. (MIRA 14:3)
(Potassium ferrate)

Doronin Yu. A.

26-58-6-11/56

AUTHOR: Vinogradov, N.P., Golitsyn, S.V., Doronin, Yu.A.

TITLE: Conserve a Precious Natural Monument (Sokhranit' tsenny pamyatnik prirody)

PERIODICAL: Priroda, 1958, Nr 6, p 56-57 (USSR)

ABSTRACT: The article deals with the pine forests located in the Artem mountains (Donbass). In 1774 these mountains were covered by one vast pine forest. Since that time most of the pine trees have been felled, and oak trees now prevail. However, about 100 ha of the ancient pine trees growing on chalk soil are still untouched. Unless immediate steps are taken, these trees will also be destroyed. The authors strongly recommend government control over those precious ancient pine trees.

ASSOCIATION: Agrobiostantsiya "Galich'ya gora", Lipetskaya oblast' (Agricultural and Biological Station "Galich'ya Gora", Lipetsk Oblast')

Card 1/1

VINOGRADOV, N.P.; GOLITSYN, S.V.; DORONIN, Yu.A.; SERYABIN, M.P.

"Changes in the forest-steppe vegetation of the Russian Plain under the influence of human activities during the 16th - 18th centuries" by A.M. Semenova-Tian-Shanskaia. Reviewed by N.P. Vinogradov and others. Bot.zhur. 43 no.10:1491-1493 0 '58.
(MIRA 11:11)

1. Voronezhskiy gosudarstvennyy universitet.
(Phytogeography) (Semenova-Tian-Shanskaia, A.M.)

VINOGRADOV, N.P.; GOLITSYN, S.V.; LORONIN, Yu.A.

Donskoye Belogor'ye as a new region of the "lowered Alps" in the
central Russian Upland. Bot. zhur. 45 no.4:524-532 Ap '60.
(MIRA 14:5)

1. Voronezhskiy gosudarstvennyy universitet.
(Donskoye Belogor'ye--Botany--Ecology)

KHUKHRYANSKIY, P.N.; ZHITKOV, P.N.; KOVYAZIN, F.Ya.; TSYPLAKOV,
D.M.; OGARKOV, B.I.; OGARKOVA, T.V.; RAKIN, A.G., kand.
tekhn. nauk; SHEYDIN, I.A.; PUMYANTSEVA, O.M.; MAL'TSEVSKAYA,
R.P.; KUVAROVA, M.P.; PYUDIK, P.E.; MIROSHCHENKO, S.N.;
DORONIN, Yu.G.; ASOTSKIY, L.S.; MAREYEV, V.S.; MOLENSKIY,
K.I., inzh., retsenzent

[Compressed wood and wood plastics in the machinery industry;
a manual] Pressovannaya drevesina i drevesnye plastiki v ma-
shinostroenii; spravochnik. Moskva, Mashinostroenie, 1965.
147 p. (MIRA 18:3)

NIKOLAI, YU.G.; TARKIN, A.G.

Effect of moisture and temperature on the properties of compressed
laminated wood. Dokl. Akad. Nauk SSSR 14 no.10:1142-1145, 1965.

1. TENIIF,

(RUS 13:1)

L 00667-67		EWT(m)/EWP(j)/T	IJP(c)	RM	4
ACC NR:	AP6009867	(A)	SOURCE CODE: UR/0413/66/000/004/0065/0065		
INVENTOR: <u>Kalnina'sh, A. I.; Rakin, A. G.; Berzin'sh, G. V.; Sheydin, I. A.;</u> <u>Darzin'sh, T. A.; Muzhits, V. I.; Doronin, Yu. G.; Ziyemelis, A. E.; Churina, Ye. A.</u>					
ORG: none					
TITLE: Preparation of wood plastics. Class 38, No. 178971 [announced by the <u>Institute of Wood Chemistry AN LatSSR (Institut khimii drevesiny AN Latvyskoy SSR)</u> <u>and Central Scientific-Research Institute of Plywood (Tsentral'nyy nauchno-issledovatel'skiy institut fanery)]</u>					
SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 65					
TOPIC TAGS: plywood, wood chemistry, wood plastic, <i>forest product</i>					
ABSTRACT: An Author Certificate has been issued describing a method of preparing wood plastics. To improve the physical and mechanical properties of the end product and lower the amount of <u>binder</u> for making wood plastic from veneer sheets or ground wood, the latter are treated, prior to pressing, with a 25-percent solution of ammonia for 4 hr at 18--20C. The treated sheets are combined with untreated sheets during pressing. (LD)					
SUB CODE: 11/ SUBM DATE: 25Jan65					
Card 1/1. vlr UDC: 674.812.2					

DORONIN, Yu. P. Cand Phys-Math Sci -- (diss) "The heat balance of the ice cover of the Arctic ~~region~~ and its effect upon certain hydrometeorological characteristics (Fall-Winter period)." Len, 1969. 13 pp (Arctic and Antarctic Sci Res Inst of Glavsevmorpyt' ~~■~~ Main Administration of the Northern Sea Route, ^{Min of} ~~Main Administration~~ Maritime Fleet), 300 copies. Printed by duplicating machine. (KL, 41-59, 102)

DOBNIN, Yu.P.

Accretion of sea ice. Probl.Arkt.i Antarkt. no.1:73-80
'59. (MIRA 13:7)
(Sea ice)

DORONIN, Yu.P.

Transformation of air masses moving over the ice cover. Probl.
Arkt. no.6:43-62 '59. (MIRA 13:6)
(Arctic regions--Atmospheric temperatures)

S/124/62/000/001/031/046
D237/D304

AUTHOR: Doronin, Yu. P.

TITLE: Turbulent heat transfer between ice layer and atmosphere

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 1, 1962, 96, abstract 1B658 (Tr. Arkt. i antarkt. n.-i. in-ta, 1959, 226, 19-29)

TEXT: Calculating a turbulent heat flow and heat losses on evaporation is based on differential observations specially obtained from the drifting stations CП-4 (SP-4) and CП-5 (SP-5). It is shown that in the bottom atmosphere layer above the ice, relative humidity can be taken as independent of the altitude. This makes measurements of the humidity profile unnecessary. For the summer period (August), turbulent heat transfer is +208 cal/cm² per month, while loss of heat on evaporation is +199

Card 1/2

Turbulent heat transfer...

S/124/62/000/001/031/046
D237/D304

cal/cm² per month. For the winter period, the values are -738
cal/cm² and -73 cal/cm² respectively; i.e., during the cold
period, the ice surface absorbs heat from the atmosphere. 8
references. [Abstracter's note: Complete translation.]

Card 2/2

S/169/62/000/002/038/072
D228/D301

AUTHOR: Doronin, Yu. P.

TITLE: A method of calculating the radiation balance of the snow- and ice-cover in the Arctic

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1962, 21, abstract 2B169 (Tr. Arkt. i Antarkt. n.-i. in-ta, 229, 1961, 84-89)

TEXT: A method is proposed for calculating the radiation balance of the snow- and ice-cover in the Arctic in the absence of direct observations. The changes in the different periods of the radiation balance components and the meteorologic parameters on which they depend -- the magnitudes of the albedo over the land and sea, the relations of the amount of precipitation to the wind direction -- are considered for a number of Arctic stations. Calculations and estimates were made for individual components of the radiation balance. Calculations of ice melting, in which data on the radiation balance computed by the stated method were used, gave

Card 1/2

A method of calculating ...

S/169/62/000/002/038/072
D228/D302

satisfactory results. /~Abstracter's note: Complete translation._/

✓

Card 2/2

DORONIN, Yu.P.

Effect of the initial heat supply of ice on some subsequent processes.
Probl. Arkt. i Antarkt. no.8:29-36 '61. (MIRA 15:3)
(Ice--Thermal properties)

DORONIN, Yu.P.

Turbulent heat exchange between water and the ice cover in the sea.
Okeanologiya 1 no.5:846-850 '61. (MIRA 15:3)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.
(Ocean temperature) (Sea ice)

DORONIN, Yu. P.

AANII

Turbulent Heat Exchange Between Water and an Overlying Ice Cover

At the present time vertical heat exchange at sea, when an ice cover is present, is usually determined by the formulas derived by N. N. Zubov. Zubov indicates that vertical mixing of water at sea is only possible in a case when instability prevails. But turbulent mixing also occurs when there is a stable distribution of density, and there is also a flux of heat between water and ice under these conditions. Equations are derived to fit this case. A study of this phenomenon was made by workers of the Marine Hydrophysical Institute and Moscow State University in May-August 1956 on the drifting station SP-4. Figure 1 shows curves of the vertical distribution of velocity beneath the ice. The equations are applied to these experimental data. The coefficient of turbulency is derived and the values for heat exchange determined. (Abstract: "Turbulent Heat Exchange Between the Water and Ice Cover at Sea," by Yu. P. DORONIN, Arctic and Antarctic Scientific Research Institute, Moscow, Okeanologiya, Vol 1, No 5, 1961, pp 846-850)

SOURCE: JPRS 11914, 15 Jan 62, SOVIET-BLOC RESEARCH IN GEOPHYSICS, ASTRONOMY AND SPACE No 27, UNCLASSIFIED

DORONIN, Yu.P.

Calculation of heat currents in creating ice-free water areas.
Probl. Arkt. i Antarkt. no.12:77-83 '63. (MIRA 16:7)
(Harbors) (Ice on rivers, lakes, etc.)

DORONIN, Yu.P.

Calculation of the melting of ice with an artificial change of
the albedo. Probl. Arkt. i Antarkt. no.13:45-49 '63. (MIRA 16:9)
(Thawing)

DORONIN, Yu.P.

Numerical method for calculating the thickness and temperature of
ice. Probl.Arkt.i Antark. no.14:17-25 '63. (MIRA 16:12)